FLOSCAN INSTRUMENT CO, INC.

World Leader
in Fuel Flow Computers

Case Study

NOx Reporting Made Simple

"Top Gun" Naval Air Station Chooses FloScan

"After extensive research on the performance and reliability of fuel monitoring systems, the person in charge of generator operations at NAS Fallon concluded that FloScan was the best product for the project."

—Joe Donatini
Johnson Hicks Marine Electronics

Introduction

FloScan Fuel Computers are the system of choice for use on industrial generators and with good reason. The initial cost of purchase and installation makes them cost effective. They are extremely accurate, meeting EPA reporting requirements for tracking NOx emissions while keeping tabs on fuel use and even for identifying incidents of fuel theft. Add to that the simple fact that FloScan fuel flow sensors are specifically designed for use on diesel engines and it makes perfect sense that FloScan is leading the way in the rapidly expanding industrial generator market.

Recently the United States Navy upgraded the 33 diesel generators in use at Naval Air Station Fallon—the home of the legendary Top Gun tactical fighter training center in the northern Nevada desert—to meet EPA reporting requirements for NOx emissions and to track operation time and fuel consumption. They engaged Chucagh Federal Solutions to establish the bidding process for the large and complicated project. The generators in use at Fallon were scattered around thousands of acres of the military complex; several inside buildings to drive fire pump systems; others in small outbuildings for powering runway lighting systems and still other autonomously housed systems used for backup power and other purposes. Some were located in remote areas atop mountains overlooking the base, others deep inside basement areas. The generators varied greatly in size and brand and included engines manufactured by Cummins, Caterpillar, Detroit Diesel, John Deere and Perkins.

NAS Fallon and the Fallon Range Training Complex are the Navy's premier integrated strike warfare training facilities supporting present and emerging National Defense requirements. Their mission is to support

The simplicity of installation on land-based generators was only one of the many reasons JHME and NAS Fallon operation engineers chose FloScan Fuel Log systems.

carrier air wings preparing to deploy; and other units participating in training events, including joint and multinational training and exercises. To achieve this goal they utilize innovative and efficient resource management in partnership with the people of Northern Nevada and in harmony with the natural environment to continually maintain and upgrade the Fallon Range Training Complex; Van Voorhis Airfield; their aviation support facilities; and base living and recreation accommodations.

"The NAS Fallon project was prompted by Environmental Protection Agency NOx emissions reporting requirements. Tighter federal, state and municipal air quality standards are something that private sector and government users of diesel generators must comply with and represent a growth market for FloScan Fuel Log systems."

The Bidding Process

Chugach Federal Solutions, Inc. provides general construction and construction management services for a variety of government entities including NASA and military installations in the Pacific, Alaska and the 48 contiguous States. It engages in design/build (DB), Design/Bid/Build (DBB), and competitively bid construction work. The bidding process was open to contractors capable of providing and installing fuel monitoring systems that meet the EPA's rigid criteria for tracking fuel consumption to meet emissions and air quality regulations. Long time FloScan distributor and installer Johnson Hicks Marine Electronics (JHME) entered the bidding process incorporating FloScan Fuel Log generator systems capable of fitting all of the various diesel applications on the base. After a comprehensive analysis of the equipment and competitiveness of the competing bids JHME was awarded the contract.

JHME has been in business for over 35 years specializing in selling marine electronics with expert vessel installation including custom fabrication, service and repairs. They are known for their ability to provide and install a wide range of advanced systems in all types of vessels including high speed satellite internet, fuel management systems, Radar, autopilot, sonar, GPS and chart plotters, charging systems and more. They have a wide ranging customer base both in the United States and abroad including Central and South America and the Middle East. The company has over 20-years experience selling and installing FloScan systems for marine use on main propulsion engines and onboard generator systems.

"The Fallon project was the first time JHME bid a job that involved installing FloScan systems on land-based generators," said Joe Donatini, company president. "We've been installing their systems for marine applications for at least 23 years with excellent results and there is very little difference in the equipment needed for land-based applications with the exception of the FloScan Fuel Log gauge package with its non-resettable fuel totalizer to meet EPA requirements."

JHME constructed a simple tree-type bracket for the FloScan supply and return line sensors and Fuel Log gauge then attached the fuel lines to complete the installation.

FloScan Fuel Log for Diesel Generators

FloScan has been designing and manufacturing fuel computers for use on diesel generators for 3 decades, but with the expansion of federal, state and even

municipal regulations on the operation of industrial and construction generators their presence in that marketplace has expanded exponentially. While there are other systems that claim applicability, only FloScan fuel sensors were designed specifically for use on diesel engines. Their accuracy meets all regulatory reporting requirements; their reliability is legendary. The unique fail-safe design of the FloScan fuel flow sensor guarantees it cannot cause an engine failure, a claim that other types of flow sensors simply can't make. That is why FloScan sensors are certified by the FAA for use on general aviation aircraft and why FloScan dominates the marine market with a long list of applications on military and government vessels.

FloScan Fuel Computers are the gold standard for use on land-based diesel generators of all types.

"During the process of reviewing the bids, Dan Formantini, the person responsible for the operational integrity of all the generators on the base, began comparing the various types of flow sensors and monitoring systems," said Donatini. "He did his own research on system performance and reliability and came to the conclusion that the only fuel computers he wanted on the NAS Fallon generators were the systems manufactured by FloScan."

FloScan systems for generators start with the unmatched reliability of its diesel fuel sensors, which provide the accurate fuel consumption data. It is routed to the FloScan Fuel Log gauge, the latest addition to FloScan's full line of digital instruments for diesel engines rated from 30 - 5000 kW. Fuel Log addresses the need for accurate flow measurement to determine baselines for NOx emission reporting, but it can also point out poor engine performance (malfunctioning injectors or injection systems; faltering turbochargers, or other performance problems) as well as identifying incidents of fuel theft through discrepancies between tank fill-up records and the totalizer reading. Fuel Log can also be used for fuel billing purposes when generators are being used on a "per hour or per job" basis by monitoring precise fuel consumption.

FloScan Fuel Log systems provide Instantaneous net fuel burn rate; Cumulative (non-resettable) fuel totalizer; Resettable fuel (job) totalizer; Resettable engine (job) hour meter; Pulse signal output for instantaneous net fuel usage and it can be interfaced with FloScan DataLog or user specified data acquisition software for recording fuel usage. The system offers (+/-) 2% accuracy with retro-calibration on generator applications with models available to read in U.S. gallons or liters. The system operates on 12VDC and a 32V/24V voltage reducer is available to meet any installation requirements.

The Installation Process

With any government project installation is an important part of the contractor's responsibility. JHME's experience installing FloScan marine systems provided all the background necessary for installing FloScan generator systems at Fallon.

"Being new to dealing with industrial and construction generators we were pleasantly surprised at how simple the FloScan generator systems were to install on land-based generators," Donatini told us in a recent interview. "Marine installations are more challenging for any number of reasons, not the least of which is we usually find ourselves working in cramped engine rooms around a vessel's main propulsion engines and generators, which can be crammed into very tight spots. That can limit the places we can locate the fuel sensors. Fortunately, that was not the case at Fallon. The generators housed inside large buildings or in the smaller outbuildings offered excellent accessibility for planning out the installation process. We were able to construct simple tree-like assemblies for the inlet and return line flow sensors and in a number of cases the Fuel Log gauge was mounted on a small panel right on the tree. The construction-type generators enclosed in tight metal housings were a little more challenging, but really didn't present any significant installation problems."

As Joe Donatini said, FloScan generator systems are designed for ease of installation. The entire system consists of two sensors matched to meet the flow rate of the engine, one on the inlet and the other on the return line. The inlet sensor computes the fuel passing into the fuel rail and the return subtracts the unburned fuel that is passed back to the fuel tank maintaining an accurate accounting of the fuel consumed. Most generator systems incorporate the Fuel Log gauge as the primary method of tracking consumption and burn rate. For clients who wish to exercise more control over the data generated the system can be linked to FloScan's FloNET network hub which routes data to onsite or remote computers running FloScan DataLog software. The software will provide a minute-by-minute log of fuel consumption in a spreadsheet format. Multiple generators can be combined into the reporting system due to the programing flexibility of DataLog.

Why Choose FloScan?

The benefits of installing FloScan Fuel Log systems are impressive.

- It is ideal for NOx emission reporting.
- Identifies poor engine performance that present as increases in normal fuel consumption.
- Immediately identifies possible fuel theft by comparing fill-up records with totalizer readings.
- Provides accurate fuel usage data for billing purposes.
- The Cumulative "non-resettable" fuel totalizer can be used for determining engine service intervals.

Generator Applications: A New Growth Market

The expansion of federal, state and even municipal regulations governing the operation of diesel powered industrial and construction generators has created a burgeoning market for aftermarket fuel computers, a market that FloScan distributors and installers can easily transition into. Johnson Hicks Marine Electronics was new to the land-based generator market, but were successful in bidding the NAS Fallon project and were thoroughly pleased with the installation side of the project thanks to the flexibility and ease of installing FloScan generator systems.

Air quality regulations and a growing concern with fuel theft in many regions has caused a spike in demand for fuel computer systems by private and government sector generator operators and FloScan offers the required accuracy and tracking capability, reliability, simplicity of installation and price points to make it the only smart choice for potential customers.

FloScan is committed to working with its distributors, installers and end users to provide the right fuel monitoring systems for any project. For more information call Joe Dydasco at 206-524-6625 Ext 316 or email joe@floscan.com.

Some NAS Fallon generators were located deep in building basements to power fire control systems or as auxiliary power backup systems. Installation of FloScan systems on these generators was extremely simple.